EXHIBIT G

REDACTED

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 1    UNITED STATES DISTRICT COURT
      NORTHERN DISTRICT OF CALIFORNIA
 2    SAN FRANCISCO DIVISION
 3    ------------------------------------X
      IN RE GOOGLE PLAY STORE
 4    ANTITRUST LITIGATION
 5    Case No.  3:21-md-02981-JD
 6
      THIS DOCUMENT RELATES TO:
 7    Epic Games Inc. v. Google LLC, et al.,
      Case No. 3:20-cv-05671-JD
 8
      In Re Google Play Consumer
 9    Antitrust Litigation
      Case No. 3:20-cv-05671-JD
10
      In Re Google Play Developer
11    Antitrust Litigation,
      Case No: 3:20-cv-05792-JD
12
      State of Utah, et al., v.
13    Google LLC, et al.,
      Case No: 3:21-cv-05227-JD
14    ------------------------------------X
15
16              VIDEOTAPE DEPOSITION
17               HAL SINGER, PH.D.
18            Thursday, May 12, 2022
19                9:07 a.m. (EST)
20
21
22
23
24    Reported by:
25    Ryan K. Black, RPR, CLR, Notary Public
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Page 2

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4   Thursday, May 12, 2022

5

6   Video Deposition of HAL SINGER, PH.D.,

7   taken at the Law Offices of Munger, Tolles &

8   Olson, LLP, 601 Massachusetts Avenue NW

9   Washington, DC, beginning at 9:07 a.m.,

10   before Ryan K. Black, a Registered

11   Professional Reporter, Certified Livenote

12   Reporter and Notary Public and for the

13   District of Columbia.

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Page 3

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1   I N D E X

2 TESTIMONY OF: HAL SINGER, PH.D   PAGE

5   E X H I B I T S

6 EXHIBIT   DESCRIPTION   PAGE

24

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Page 5

1   THE VIDEOGRAPHER: Good morning. We are

2   on the record at 9:07 a.m. on May 12, 2022. This

3   is the video-recorded deposition of Hal Singer

4   taken in the matter of In re: Google Play Store

5   Antitrust Litigation, filed in the United States

6   District Court, Northern District of California,

7   San Francisco Division, Case No.

8   3:21-MD-02981-JD.

9   My name is Emmanuel Pezoa, from the firm

10   Veritext Legal Solutions. The court reporter is

11   Ryan Black, from the firm Veritext Legal

12   Solutions.

13   Will the court re -- court reporter

14   please swear in the witness?

15   *   *   *

16   Whereupon --

17   HAL JASON SINGER, PH.D.,

18   called to testify, having been first duly sworn

19   or affirmed, was examined and testified as

20   follows:

21   *   *   *

22   THE REPORTER: And, Counsel, if you want

23   to state your appearances for the record, that

24   would be great.

25   MR. RAPHAEL: Sure.

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 1          Justin Raphael, Munger Tolles & Olson,

 2    for the defendants.

 3          MS. GIULIANELLI:  Karma Giulianelli,

 4    from Bartlit Beck, for the consumer class.

 5          MS. JIANG:  Yajing Jiang from Charles

 6    River Associates.

 7          MR. RAPHAEL:  Is there anyone on the

 8    line who wants to introduce themselves?

 9          MS. ERNST:  This is Amy Ernst.  I'm here

10    with Hausfeld for the plaintiff developers.

11          THE VIDEOGRAPHER:  Thank you.  You may

12    proceed.

13          MR. ZEPP:  Eric Zepp here, from Cravath

14    Swaine & Moore, on behalf of Epic Games.

15          MR. CAVES:  I'm Kevin Caves, with Econ

16    One on behalf of the Commercial developers.

17                    EXAMINATION

18    BY MR. RAPHAEL:

19       Q.   All right.  Dr. Singer, will you just

20    state your name for the record?

21       A.   Hal Jason Singer.

22       Q.   And, Dr. Singer, you've been deposed

23    many times; is that right?

24       A.   Yes.

25       Q.   How many times would you say you've been
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1   developers are passing through savings in order

2   to induce customers to switch to the -- and

3   download the app from the developer's website.

4   So it's not just theory. I mean,

5   obviously, theory is on my side; but I think we

6   have -- we have good evidence to bear as well.

7   Q.   But you would agree that standard

8   economic theory tells us that developers would

9   have incentives to respond to lower service fees

10   by reducing their prices?

11   A.   Correct.

12   Q.   Okay. And standard economics also

13   tells us that competition drives firms to make

14   competitive investments in product quality,

15   right?

16   A.   Yes. I believe that, as I said, that

17   in -- in a but-for world with lower take rates

18   and this new-found cash flow that the developers

19   would enjoy, not all of it is going to go into

20   the pockets of the owners. But -- but some of

21   that will be reinvested and -- and -- and in

22   services and features that -- that make the app a

23   better experience for the user.

24   Q.   Right. So standard economics would give

25   developers an incentive to respond to lower

1   service fees by reducing prices and improving

2   quality?

3   A.   Correct.

4   Q.   Now, in your reports, do you have any

5   model that will tell the Court or the jury which

6   developer will follow the incentives to improve

7   quality and which developer will follow the

8   incentives to reduce price?

9   A.   Well, I think all developers will reduce

10   price. My opinion on quality is that it would

11   happen at a -- at a general level, but that is

12   not my proof of impact. My proof of impact turns

13   on the price response.

14   Q.   Have you done any analysis to determine

15   whether any developer would improve the -- the

16   quality of their app in a world with reduced

17   service fees?

18   A.   I don't think I've done analysis.

19   I'm -- I'm aware of some testimony, and we'd have

20   to go into my footnotes of developers testifying

21   that they would do something to that effect. But

22   I -- that's more me just citing a developer than

23   -- you know, than doing -- I took your question

24   to mean original analysis, like trying to model

25   the quality dimension. I don't do that.

Page 90

1   predicts.

2   A.   Correct.

3   Q.   Okay. And you're aware, aren't you,

4   that developers choose the category for their app

5   when they list it in Google Play?

6   A.   Yes.

7   Q.   Now, in your reports, have you

8   calculated or estimated the marginal cost of

9   supplying an additional app subscription or

10   in-app purchaser for any developer?

11   A.   I haven't estimated the marginal cost,

12   but I have cited record evidence and economic

13   literature establishing that they do, in fact,

14   incur marginal costs. And I -- I also have the

15   opinion that processing payments are marginal

16   cost, and I also have the opinion that the take

17   rate is a marginal cost. So I --

18   Q.   Okay.

19   A.   -- leave it at that.

20   Q.   Okay. So in your reports, though, you

21   haven't calculated or estimated the marginal cost

22   of supplying an additional app subscription or

23   in-app purchase for any developer.

24   A.   No. And the models don't call for that.

25   The -- at least in the short run, all the models

Page 91

1   require is that they face a positive marginal

2   cost, and I'm confident they do.

3   Q.   All right. So the pass-through formula

4   you've used in your reports doesn't actually

5   depend on what the marginal cost of the developer

6   is.

7   MS. GIULIANELLI: Objection.

8   THE WITNESS: That's fair.

9   Do you want to -- I think we're an hour

10 and a half in?

11   MS. GIULIANELLI: You want to --

12   MR. RAPHAEL: Happy to take a break.

13   MS. GIULIANELLI: -- a break?

14   THE WITNESS: Okay. Yes.

15   THE VIDEOGRAPHER: Please stand by.

16   We're now off the record. The time is

17 10:40 a.m.

18   (Recess taken.)

19   THE VIDEOGRAPHER: We're now on the

20 record. The time is 10:50 a.m.

21 BY MR. RAPHAEL:

22   Q.   Dr. Singer, have you put forth any

23 method in your reports to determine what each

24 developer's marginal costs are, other than

25 service fees?

1   A.   Well, other than the service fees

2   and the processing fees, I haven't estimated

3   precisely the marginal costs. But I have studied

4   the issue of whether they do incur other marginal

5   costs, and I've come to the conclusion that they

6   do; and I cite record evidence in economics

7   articles.

8   Q.   And so economics articles would be a

9   good source to determine what the marginal costs

10 for the developers are other than the service

11 fees and transaction fees?

12   A.   For identifying the categories of

13 marginal costs but not to -- not to estimate

14 precisely what -- what it is in, say, percentage

15 terms.

16   Q.   Okay. Now, your opinion is that

17 acquiring an app -- strike that.

18   Your opinion is that downloading an

19 app and making in-app purchases are separate

20 transactions involving separate products.

21   A.   I wouldn't quite put it that way. I

22 would say that the -- the services that are being

23 offered in the in-app for -- in support of in-app

24 transactions are different. It's a different

25 suite of services than the services being offered

1   consumer is complete?

2   A.   Certainly not the sales costs.

3   Certainly not the processing fee. Certainly not

4   the take rate.

5   Q.   How about the other costs that you've

6   listed here in your report?

7   A.   It's possible that some of those other

8   marginal costs identified by Ghose and Han would

9   occur subsequent to -- to a particular

10   transaction, --

11   Q.   Okay.

12   A.   -- but could still be considered as

13   variable costs in the sense that they rise

14   with -- with output.

15   Q.   Okay. Could the marginal cost to a

16   developer of supplying an additional in-app

17   purchase vary from developer to developer?

18   A.   Sure.

19   Q.   And could some developers have zero

20   marginal costs for an in-app purchase?

21   A.   No.

22   Q.   Could you go to Page 153 of your report?

23   A.   You must mean my initial report

24   because --

25   Q.   Correct.

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1   A.   -- the reply is not -- okay.

2   Page 153?

3   Q.   Yes, sir.

4   A.   Okay.

5   Q.   Do you see there second from the top

6   there's an article by Avi Goldfarb and Catherine

7   Tucker called "Digital Economics"?

8   A.   Yes.

9   Q.   So that's an article that you've relied

10   on in your report?

11   A.   Yes.

12   Q.   Are you familiar with that article?

13   A.   In part, yes.

14   Q.   Okay. Do you know if that article says

15   anything about what marginal costs might be for a

16   digital good?

17   A.   No. But if it were just a digital good,

18   I think that might be too broad of a category.

19   We're talking about in-app transactions here.

20   MR. RAPHAEL: I'm going to mark this as

21   Exhibit 335.

22   (Exhibit No. 335, an article titled

23   Digital Economics by Avi Goldfarb and Catherine

24   Tucker, was introduced electronically.)

25   THE REPORTER: Here you go, sir.

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1   THE WITNESS: Thanks.

2   BY MR. RAPHAEL:

3   Q.   Do you see Exhibit 335, Dr. Singer?

4   A.   I do.

5   Q.   And what is it?

6   A.   It -- it appears to be the article that

7   I cited.

8   Q.   That's the "Digital Economics" article

9   by Tucker and Goldfarb?

10   A.   Yes.

11   Q.   And -- and could you go to Page 12 of

12   the article?

13   A.   If you'd let me just -- one second. I'd

14   -- I'd like to just read the abstract quickly.

15   Q.   Would you go to Page 12, please?

16   A.   Hold on one second.

17   Okay. Page 12.

18   Okay.

19   Q.   Do you see at -- further down, say,

20   two-thirds of the way down in the left column,

21   there's a header that says, "The replication cost

22   of digital goods is zero"?

23   A.   Yes.

24   Q.   So this article that you relied on in

25   your report says that "The replication costs of

Page 98

1   digital goods is zero," correct?

2   A.   Correct.

3   Q.   Now, are you familiar with V-Bucks?

4   A.   Oh. Can I put this to the side?

5   Q.   For now, yes.

6   A.   Yeah.

7   And I would just note for the record

8   that replication costs and marginal costs are not

9   the same.

10   Q.   Well, how are they different?

11   A.   Oh. What -- what Goldfarb is not taking

12   into consideration here is that to sell the extra

13   unit you have to pay a processing fee. That's a

14   marginal cost.

15   So it's true that to create the next

16   sword -- the 150th sword doesn't cost any more to

17   replicate that sword, but that doesn't mean there

18   aren't any marginal costs incurred in the

19   transaction.

20   Q.   Understood.

21   All right. Could some developers have

22   negative marginal costs for in-app purchases?

23   A.   It's hard to -- to fathom that.

24   Q.   What if a developer generates

25   advertising revenue as the result of an in-app

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1   being reflected in the prices of apps in the

2   transaction data.

3   Q.   Right. And your opinion is that

4   Google's service fees, to the extent that they

5   are supercompetitive, is equivalent to an

6   increase in the developer's marginal cost.

7   A.   It can be understood that way, yes.

8   Q.   Right. And in your report, you've

9   modeled the proper economic way to calculate how

10   a profit-maximizing developer would set prices

11   based on marginal costs.

12   A.   I have. And --

13   Q.   Right.

14   A.   -- and, as you know, it depends on

15   the -- the nature of the demand and the demand

16   specification that you assume, right? Each

17   demand specification you assume is going to apply

18   at different pass-through rates.

19   Q.   Right. So could you go to Page 104 of

20   your report, your opening report, please?

21   A.   Sure.

22   Q.   And you'll see this is a continuation of

23   the Paragraph 225 from the previous page.

24   And you've got a formula there that has

25   "P minus C star divided by P equals one divided

Page 106

1   by E sub D."

2   Do you see that?

3   A.   Yes.   That's the classic Lerner markup.

4   Q.   Right.   So that's -- that's the proper

5   economic model for how a profit maximizing

6   developer would set prices based on marginal

7   costs, right?

8   A.   That model describes the markup over

9   marginal cost as the function of the elasticity

10 of demand faced by the developer.

11   Q.   Right.   And -- and this model on Page

12 104 of your opening report, that -- that's --

13   A.   So --

14   Q.   -- the correct economic mod -- economic

15 way to model how the change in marginal costs

16 will affect the price that the developer charges.

17   A.   It's the -- it's the way to think

18 about it at -- at a very, very high level of

19 abstraction.   But, as you know, to actually

20 estimate the pass-through rate here, I have to

21 make an assumption about the demands curve and --

22 and -- and the precise nature of demand that a --

23 the developer faces, right?

24   Once you --

25   Q.   Understood.

1   A.   -- make a -- once you make that

2   decision, you get these pass-through rules,

3   right? And the pass-through rules -- whether you

4   go linear or logit or -- or constant elasticity

5   -- are going to express pass-through as a

6   function of things that do not include the

7   marginal cost.

8   Q.   Understood. But this formula on Page

9   104 of your report is the correct economic way to

10   model the relationship between the developer's

11   price and the marginal cost in general?

12   A.   Well, I just want to put that caveat in

13   there. It's the -- it's the -- definitely the

14   way to think about it and why it's in my

15   preamble, right?

16   But when I go to model the precise

17   amount of pass-through, I have to make an

18   assumption about what kind of demand the

19   developer faces, right? And that -- that puts

20   me to a -- takes me to a pass-through rule that

21   isn't necessarily going to be denominated in

22   terms of costs.

23   Q.   Understood. So -- but -- but this mod

24   -- this economic model you've described in Page

25   104 of your report, that's generally accepted in

1   economics.

2   A.   Yes.

3   Q.   Now, if you just look at the cost term

4   there, C star, and the -- the C star in that

5   formula that you have on Page 104 of your report

6   is equal to C divided by one minus T, right?

7   A.   Correct.

8   Q.   And -- and in that -- in that cost term

9   I just described, T is the service fee rate?

10   A.   Correct.

11   Q.   And C is the developer's per-unit

12   marginal cost other than the service fee?

13   A.   Correct. Processing and the like, yes.

14   Any other --

15   Q.   Okay.

16   A.   Any other types of marginal costs.

17   Q.   Okay. And so one input into the

18   generally accepted economic model of how the

19   profit-maximizing developer would set pri --

20   prices is the marginal costs other than the

21   service fee.

22   A.   For short-run profit maximization, the

23   answer is, yes, that this model, at this high

24   level of ab -- of abstraction, is a function of

25   the marginal cost.

1   Q.   Right. And in terms of how the price is

2   a function of mar -- of --of -- of marginal cost,

3   the -- the -- the formula you've got here on Page

4   104, in that formula, the effect of a change in

5   the service fee -- let me -- let me put it

6   differently.

7   The formula you've got on Page 104, the

8   effect on prices will be -- as a result of a

9   change in the service fee will be proportional to

10   the marginal costs other than the service fee.

11   A.   In -- for short-run profit maximization,

12   yes. For -- for long-run profit maximization,

13   this is not -- this is not the -- the way that

14   you'd get to the effect on price.

15   Q.   Okay. Now, -- so let me just ask,

16   looking at this cost term here, C -- C star, if C

17   in that formula, which is the marginal cost other

18   than the service fee, if that's zero, then the

19   service fee rate will not have any effect on the

20   ultimate price charged according to this model,

21   correct?

22   A.   Let me just say this: It -- it's --

23   it's never zero in the real world. But -- but if

24   you want me to ask -- answer the hypothetical,

25   counterfactually, if we had -- if we had a zero

1   marginal cost, then by this model, and this model

2   alone, then in the short run, prices would not

3   adjust to the take rate.

4   As I explain in my report, there's all

5   sorts of reasons why we would still, even in that

6   extreme and counterfactual assumption, would

7   expect prices to change with the change in the

8   take rate, including from steering, including

9   from having to cover all costs in the long

10   run, --

11   Q.   Okay.

12   A.   -- including from sticky prices.

13   Q.   Okay. Now, let me just ask again,

14   hypothetically, if that term C, which are the

15   marginal costs other than the service fee rate

16   in your formula on Page 104, if that term is

17   negative, then a reduction in the service fee

18   rate will actually lead to an increase in the

19   price that the developer would charge.

20   A.   I haven't done that one yet, but I

21   think you've got the -- the sign correct. If you

22   multiply, in that example, 1.43 by a negative

23   cost, I think that there -- there would be a

24   negative relationship in the short run for this

25   equation.

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 1   period.

 2   BY MR. RAPHAEL:

 3        Q.    But the pass-through formula you have

 4   would predict changes in the pass-through rate

 5   from week to week or month to month if the share

 6   changes.   Fair?

 7        A.    If one were so inclined to measure it on

 8   -- on a monthly or nanosecond basis, yes, you

 9   could get very strange results.

10        Q.    Okay.   Could the formula you've got

11   here, the "M minus Q sub J divided by M," could

12   that be used to calculate pass-through rates in

13   any case where you know the unit market share of

14   an intermediary alleged to have passed on an

15   overcharge?

16        A.    I -- I -- I'd be reluctant to say that

17   the logit model could be applied to any case.

18   I'd want to confirm, first, as I did here, that

19   the logit model does a good job explaining the

20   relationship between prices and shares, as it

21   does here.

22             So I think you need some empirical

23   foundation before applying the logit model.

24   I think that would be a good -- good practice.

25        Q.    Okay.   Have you used the formula that
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Page 135

1   you used to calculate pass-through in this case

2   to calculate pass-through in any other case?

3   A.   I do not believe I have. In other

4   cases, what I'm typically doing is regressing

5   retail price changes on wholesale price changes.

6   Q.   Okay.

7   A.   And that -- that's just not available

8   here.

9   Q.   All right. To your knowledge, has

10 any economist used the formula you've used to

11 calculate pass-through in this case to calculate

12 pass-through in some other case?

13   A.   I -- I don't -- I don't know enough -- I

14 can't follow how pass-through is calculated in

15 every antitrust case. I can tell you that the

16 logit assumption is one of the most common

17 assumptions that's used in antitrust cases there

18 is.

19   Q.   But --

20   A.   All right?

21   Q.   But you're not aware of this formula

22 being used to calculate pass-through in another

23 case.

24   A.   Oh. Pass-through? Well, the formula

25 is used to calculate price effects from, say,

1   has imposed throughout the class period.

2   This is why their examples are so

3   tortured. They're looking at these slight little

4   variations that either barely applied to an app

5   or where prices couldn't change because of Google

6   restriction. So I -- I did everything that I

7   could possible. I'm telling you that the most

8   comprehensive thing that -- that relates would be

9   the relationship between ad valorem sales taxes

10   at -- at the state level and prices, which do

11   -- are -- there's a tight relationship between

12   those two, right?

13   Q.   Right. But the analysis of ad valorem

14   sales taxes doesn't use actual data regarding

15   developers' service fees and prices in the actual

16   world, correct?

17   A.   That is correct.

18   Q.   Okay. And so you haven't done any

19   analysis -- using actual data on prices and

20   service fees for the entire set of developers

21   that's at issue in this case, you haven't done

22   any comprehensive analysis regarding the

23   relationship between those things, correct?

24   A.   I told you I could not do it given the

25   nature of the lack of variation --

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1   Q.   And because --

2   A.   -- in Google's --

3   Q.   -- you couldn't --

4   A.   Almost every transaction.

5   MS. GIULIANELLI: Hey, hey. Let --

6   let --

7   THE WITNESS: ███████████████

8   ████████████████████████████████████

9   ████████████████████████████████████

10   ████████████████████████   And if Google

11   doesn't do it because of its restraints

12   preventing competition, I can't -- I can't run a

13   test of what you're asking for.

14   BY MR. RAPHAEL:

15   Q.   Right. And because you feel like you

16   couldn't do it, you didn't do it?

17   A.   Correct.

18   Q.   Okay. Now, the Miller -- let's go back

19   to the exhibit, I think it was 336, which was the

20   Miller article?

21   A.   Yes.

22   Q.   Now, if you'll to go to the top of Page

23   452, we were talking earlier about Expression 2

24   which refers to the per-unit tax. Do you recall

25   that?

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1   in the Staples and Office Depot case, that paper

2   clips and a ruler aren't necessarily substitutes;

3   but if the people generally tend to buy those

4   things from the same place, they can belong in

5   the same product market.

6   Q.   So -- but -- but it's not your opinion

7   that all apps in each Google Play app category

8   are substitutes.

9   A.   I just gave an example of Excel and Word

10   as being more -- more of complements, right? But

11   -- but when you think about the -- the cat -- the

12   productivity suite that Google is offering, that

13   -- that's clearly a substitute to what -- what

14   Microsoft is offering in its productivity suite.

15   Q.   Right. So some of the apps in each

16   Google Play category could be complements,

17   correct?

18   A.   They could be.

19   Q.   And some could be substitutes.

20   A.   They could be, yes.

21   Q.   Right. And you haven't put forth a

22   model in your report to determine which apps in

23   each category are complements and which are

24   substitutes?

25   A.   No. And it's not necessary to get the

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1   Q.   Let me -- let me ask a different

2 question. You haven't calculated what those

3 switching costs are.

4   A.   I haven't calculated it, no.

5   Q.   All right. So you ran a regression in

6 your opening report, correct?

7   A.   Well, I ran so many, I'm not sure which

8 one you're speaking of.

9   Q.   So let me -- fair point.

10   You ran a set of regressions in your

11 opening report.

12   A.   Yes.

13   Q.   Okay. Now, those regressions are

14 testing the elasticity of demand for apps based

15 on a change in the price of the app, right?

16   A.   As instrumented via change in the tax

17 rate, correct.

18   Q.   Okay. Now, the regression you ran in

19 preparing your opening report isn't measuring how

20 a service fee change affects the price of an app

21 or an in-app purchase, right?

22   A.   Correct. We've been through this

23 before. ██

24 ████████████████████████████████

25 ████████████████, I -- I could have employed a

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1   different model, but I couldn't given the

2   restraint.

3   Q.   Right. So just -- I -- I understand.

4   I just want to make sure we're clear about what

5   your regression does and -- and it doesn't do.

6   The regressions that you ran in your

7   opening report isn't measuring the effect of the

8   service fee on the price of the app or the in-app

9   purchases, right?

10   A.   Correct. It's doing something close so

11 that I can make a prediction about how a change

12 in the service fee would change the prices.

13   Q.   And you haven't run any regression that

14 measures how a change in the service fee affects

15 the price of an app or in-app purchases?

16   A.   I've -- I haven't -- well, I've tested

17 and -- and analyzed the regressions that were run

18 by Dr. Williams and Burtis that -- that purport

19 to do that or that attempt to do that, but those

20 experiments are so fatally flawed and botched

21 that there is no learning to be done. There's --

22 there's no -- there's no economic knowledge that

23 can be gleaned from those botched experiments.

24   Q.   Right. Now, the prices that developers

25 charge in the but-for world might depend on

1   would have been set are the prices that would

2   have been set most likely for the long haul.

3   Q.   Okay. And the prices that developers

4   charge in the but-for world could depend on what

5   their competitors charge.

6   A.   Yes.

7   Q.   Can you think of any factors that could

8   cause one developer to pass on a reduced service

9   fee in the form of a lower price and -- and would

10 make another developer not do so?

11   A.   Well, under the logit model, the

12 pass-through rate will be different depending

13 upon the share of the developer and the app

14 category. So anything that contributed to the

15 app developer having different share would

16 allow -- would be the basis for a different

17 pass-through rate.

18   Q.   Can you think of any other factors

19 that would affect whether one developer would

20 pass through a reduced service fee and another

21 developer wouldn't?

22   A.   Oh. "Wouldn't?" I mean, no. Wouldn't,

23 it's hard for me to conceive of, because almost

24 any -- any demand structure that I have would

25 have used, whether linear, logit or constant

1   that uses a dollar amount of sales tax?

2   A.   Well, in the field -- it's one of the

3   fields in the transaction data that says "taxes",

4   and it -- it is -- it is stated in dollars, I

5   believe, not as percentage. So we get to see

6   what the relationship is between those changes,

7   right, as -- as predictive -- how predictive they

8   are to changes in prices. The fact that they may

9   be denominated in dollars doesn't mean they don't

10 come from ad valorem. I'm pretty confident that

11 they are always -- or that generally -- just to

12 be safe, they're generally set as a percentage of

13 revenues.

14   Q.   Understood. But as you input them into

15 your model regarding the relationship between the

16 sales taxes and the prices, they were in dollar

17 terms and not percentage terms?

18   A.   I believe that's the case. I can -- I

19 can check that out for you in a break, but I

20 believe that the way that it's entered into the

21 database is as dollars.

22   Q.   Got it.

23   Now, going back to your formula for

24 pass-through, which, again, is essentially a

25 hundred minus the quantity share of the apps

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 1    transactions in its category, right?

 2         A.    That's for the app developer, but I

 3    don't present it that way in the report.  I

 4    present it, as you know, at the category level.

 5         Q.    Understood.

 6         A.    Okay.

 7         Q.    But that's the general math of the

 8    formula?

 9         A.    That's the math.

10         Q.    Right.  Fair to say that that math will

11    always produce a pass-through rate, unless the

12    app developer or -- has a hundred percent of a

13    Google Play category?

14         A.    I think it's fair that -- that you'll

15    get a positive pass-through rate.  You won't

16    necessarily get a big one, but you'll get a

17    positive pass-through rate with the exception

18    of the guy who dominates the field.  And, you

19    know, again, this is -- hopefully this is

20    intuitive to the non-economist in that -- in that

21    your share is capturing your dominance in this

22    arena of competition.  And so what the logit

23    model is telling us is that the more dominant you

24    are, the less -- the smaller percentage of the

25    pass -- of a cost saving you share with your --
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1   with your client.

2   Q.   Right. But just so we're clear, unless

3   the app has a hundred percent quantity share in

4   the category, your formula will predict a

5   positive pass-through rate?

6   A.   For a given app developer, that -- that

7   is correct, yes.

8   Q.   Okay. Now, you talked earlier about

9   the pass-through formula you have, potentially

10   predicting different rates from month to month or

11   week to week. We talked about that a little bit.

12   A.   Yeah. If you were to measure it on a

13   monthly basis, there would be some variation that

14   you wouldn't get if you were to measure it across

15   the -- the class period. That is correct.

16   Q.   Right. And your opinion is that it's

17   not appropriate to measure it on that short of a

18   time scale, correct?

19   A.   Correct.

20   Q.   Right. And what's the economic basis

21   for why it's inappropriate to measure it on that

22   week to week or month to month or those sorts of

23   time frames?

24   A.   I don't think that an app developer

25   is going to revisit its pricing on a -- on a

1   apply to a model of logit demand if the -- if the

2   model in Paragraph 104 is a generic model?

3   A.   Well, because the logit pass-through

4   rule states pass-through as a function of

5   industry concentration and not of cost, and so

6   when you asked me why doesn't -- you're asking me

7   basically why isn't the pass-through rate under

8   logit changing with the change in costs. It

9   doesn't. It's just a property of the logit

10   demand. It doesn't make the math on 104 wrong.

11   It doesn't make the logit wrong. It just -- it's

12   no longer a function of cost.

13   Q.   So the property of the logit demand

14   model that you used for your pass-through is that

15   the price is a function of the concentration and

16   not of the cost?

17   A.   The pass-through is a function of the

18   concentration, not of the cost, correct.

19   Q.   All right. What is focal point pricing?

20   A.   Focal point pricing is the notion that a

21   consumer might focus on the -- on the first digit

22   before the decimal, as opposed to the last two.

23   So it explains why a lot of firms end -- end

24   their prices in 99 cents, or other -- or other

25   combinations. Just a greater focus on the first

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1   -- on the stuff before the decimal place than --

2   than after the decimal place.

3   Q.   Okay. And do you -- focal point pricing

4   is a well-established concept in economics?

5   A.   Sure.

6   Q.   And in the real world, many developers

7   price transactions only at certain focal points?

8   MS. GIULIANELLI: Objection.

9   THE WITNESS: We -- we've -- I've given

10 you all the stats that I think you could ever

11 want to see and more, but, you know, we know that

12 a lot do but a lot don't. You know, ████████████

13 ██

14 ████████████████████████████

15 BY MR. RAPHAEL:

16   Q.   So fair to say, though, that in the real

17 world some developers price in way that seems

18 like they're focal point pricing and some

19 developers don't?

20   A.   Given -- given the constraints that

21 Google imposed on some developers, yes, they

22 -- you know, they did price at 99 cents.

23   Q.   Well, what analysis have you done, sir,

24 in your reports to determine what effect Google

25 -- any constraints that Google imposed on

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 1   BY MR. RAPHAEL:

 2       Q.    I guess what I'm asking is, is it your

 3   opinion that focal point pricing doesn't explain

 4   any developers' pricing in the actual world?

 5       A.    No, I think that's too harsh.  I think

 6   that focal point pricing is an important

 7   consideration here.

 8       Q.    Okay.  Now, and -- and the price floor

 9   you talked about of setting prices at 99 cents,

10   that wouldn't affect developers who set their

11   prices quite a bit above 99 cents?

12       A.    That's fair.  I think that, when we

13   looked at the data, it's about -- ███████████

14   ████████████████████████████████████████ so I

15   agree with you that -- that those would be the

16   ones who were constrained from -- from moving

17   downward.

18       Q.    Okay.  So the other ██████████ of

19   developers wouldn't be affected by what you're

20   calling the price floor that Google had in place?

21       A.    Correct.

22       Q.    Okay.

23       A.    With one caveat in the sense that there

24   could be spillover effects from a floor being set

25   at 99 on what the next step up would be, but I
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1   out, for the purposes of impact, is to say that

2   if all app developers within a category achieved

3   a certain cost reduction by virtue of enhanced

4   competition and, thereby, lower take rate, how

5   much of that would be shared with consumers in

6   the aggregate across the category. And, you

7   know, what I'm hearing is, oh, my God, have you

8   ruled out 99-cent things or things that end in 9?

9   No, we haven't -- we haven't ruled that out. But

10   we're talking about the share of the costs that

11   are being saved in the aggregate across a

12   category. We can allow for 79-cent pricing, we

13   can allow for 99-cent pricing, 29-cent pricing in

14   the but-for world. We're not putting any

15   restrictions on -- on what the price of a

16   particular app in a particular plan at a

17   particular point in time are.

18   BY MR. RAPHAEL:

19   Q.   Right. So I just want to make sure I

20   get an answer to my question. So your model for

21   a pass-through isn't trying to take account in

22   any specific way for the phenomenon of focal

23   point pricing?

24   A.   I -- I don't -- I don't think that the

25   mod -- that particular logit estimate of the 89

1   percent is accounting or needs to take account.

2   I think I need to account for it in my overall

3   opinions about what the but-for world would look

4   like. But the logit model is just telling us

5   what the implied pass-through rate is given a

6   reduction in costs, given the concentration

7   -- the typical concentration we see within

8   categories in -- you know, in the app industry.

9   Q.   Okay. Your regressions regarding the

10   logit demand, did they have any fixed effect or

11   other mechanism to control for focal point

12   pricing?

13   A.   Well, they did use fixed effects. I

14   don't know if you meant to say that, but they

15   don't have a separate control variable for focal

16   point. But it is true, now that you brought this

17   up, we do have app fixed effects, right? So to

18   the extent that an app stayed constant at a given

19   price over time or always ended at 99 -- let me

20   just say for the record what fixed effects is.

21   Quite literally, it's controlling for any of

22   these attributes of the app that are constant

23   over time. And so if that tendency to want to

24   end in 99 or 79 or 69 is constant, then, yes, my

25   regressions control for it.

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1   monopoly power.

2   Q.   Okay. Now, service fees on platforms

3   other than Google Play are marginal costs for

4   developers as well, right?

5   A.   The service fee or the take rate charged

6   by Google to the developer can be understood as a

7   marginal cost.

8   Q.   And when service fees are charged to

9   developers on other platforms that may compete

10   with Google Play, those are also properly

11   understood as marginal costs for the developers?

12   A.   Correct.

13   Q.   Okay. So if we saw service fees on

14   other platforms that are lower than Google Play's

15   service fees, those would be lower marginal costs

16   to those developers. Fair?

17   A.   Fair.

18   Q.   Okay. Now, would you predict, then,

19   that -- well, strike that.

20   In fact, it's true that many developers

21   do not charge different prices on platforms that

22   compete with Google Play that offer lower service

23   fees.

24   A.   There are examples of that, sure.

25   Q.   And do you know how many developers

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1   record.   The time is 2:08 p.m.

2   (Recess taken.)

3   THE VIDEOGRAPHER: We're now on the

4   record.   The time is 2:10 p.m.

5   BY MR. RAPHAEL:

6   Q.   Now that you've got your microphone

7   fixed, it's true, according to your report, that

8   some other app stores charge lower service fees

9   for some transactions than Google charges on

10 Google Play?

11   A.   Yes.   These -- these diminished

12 competitors, in part by virtue of the challenged

13 conduct, are charging lower, as economic theory

14 would predict they would charge lower.   How else

15 would they get someone to switch?

16   Q.   Right.   And is it the case that all

17 developers charge lower prices on other app

18 stores that have lower service fees?

19   MS. GIULIANELLI: Objection.

20   THE WITNESS: Not all, no.

21 BY MR. RAPHAEL:

22   Q.   So some developers charge the same price

23 on other app stores than Google Play where there

24 are lower service fees?

25   A.   I would -- I would assume that's a safe

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1   -- yeah, that is a safe assumption that you could

2   find examples of app prices being the same across

3   stores under today's, you know, diminished

4   competition where these rivals aren't really

5   offering meaningful substitution opportunities.

6   Q.   Have you done any analysis in your

7   reports to determine whether the majority of

8   developers on the Google Play store and another

9   app store charged the same or different prices

10 across stores?

11   A.   No, I haven't.

12   Q.   Okay. Now, in your report, I think you

13 note that different PC gaming platforms charge

14 different service fees?

15   A.   Sure.

16   Q.   Right? So Microsoft now charges a 12

17 percent service fee on -- on PC gaming?

18   A.   Yes.

19   Q.   Okay. And Steam charges more than 12

20 percent for its PC gaming platform?

21   A.   I think I give the percentages in my

22 report, but I -- I don't recall them being far

23 off from each other. I think it's a more

24 competitive marketplace.

25   Q.   Right. Well, let's go to -- let's

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1   developers.

2   Q.   Right. But other than what's in Table

3   9, have you done any empirical analysis of the

4   effect on developers' ability or inability to

5   steer on whether they lowered their prices in

6   response to lowered service fees?

7   A.   Other than 9, I -- I don't -- I haven't

8   done one, but what you're asking is a bit of a

9   trick question, which is, in the presence of

10   steering, we -- in the presence of an

11   anti-steering restraint, it is very hard to go

12   out and measure what the effect of steering would

13   be on -- on pass-through or app pricing.

14   Q.   Okay. Now, your opinion is that

15   directing customers from inside the app

16   downloaded from the Play Store to options outside

17   of the Play Store is the most efficient channel

18   for steering?

19   A.   Correct.

20   Q.   Okay. Now, what -- what empirical

21   analysis have you done to support that opinion?

22   A.   Yeah. This has been asked and answered,

23   but I'll -- we'll go back through it again, if

24   you want.

25   And let me have the question back again,

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1   please.

2   Q.   Have you done any empirical analysis to

3   support your opinion that directing customers

4   from inside the app downloaded from the Play

5   Store to options outside of the Play Store is

6   the most efficient channel for steering?

7   A.   So I think -- I think it's the same

8   answer that I gave you this morning, that I

9   haven't done original empiricism, but I -- I'm

10 aware that Google has not prevented steering on

11 billboards, television advertisements and

12 Internet advertisements, but they have prevented

13 steering from within the app itself once it's

14 downloaded on the Play Store. And that tells me

15 that, to Google, it's the most important channel.

16 Why would Google block it otherwise, right? So I

17 feel like it's a very natural inference for an

18 economist to make that this is the most -- this

19 is the most efficient.

20   If you -- put it this way: For you to

21 go any other path would incur new costs that you

22 wouldn't otherwise incur by steering within

23 the app store, right? To get someone else's

24 attention on a billboard, you've gotta pay money.

25 You don't need to do that when it's inside of

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1   your own app.

2   Q.   Do you agree that payment systems

3   that require exiting the app to complete the

4   transaction aren't reasonable substitutes for

5   Google Play billing?

6   MS. GIULIANELLI: Objection.

7   THE WITNESS: I didn't understand it,

8   so --

9   BY MR. RAPHAEL:

10   Q.   Are payment systems that would require

11   exiting the app to complete a transaction

12   reasonable substitutes for developers or

13   consumers to using Google Play billing?

14   MS. GIULIANELLI: Same objection.

15   THE WITNESS: I don't know if I have an

16   opinion here, and I'm just not aware of any

17   payment processor who requires the customer

18   to leave the app in order to consummate the

19   purchase?   I just -- I'm just not aware -- I'm

20   just not aware that that would even -- that is

21   even a thing.   I wasn't aware of that.

22   BY MR. RAPHAEL:

23   Q.   Okay.   Is there a term in your

24   pass-through rate formula for the extent to which

25   developers can steer?

1   A.   No.

2   Q.   Why not?

3   A.   Well, as you know, I ultimately

4 chose the logit model, and the logit model's

5 pass-through formula simplifies to a function of

6 market share, which is not a term for steering.

7   Q.   All right. So the -- the logit

8 pass-through formula that you used to calculate

9 the pass-through rates doesn't depend on

10 steering?

11   A.   I would say that steering ensures the

12 pass-through is going to be positive. Logit

13 allows us to estimate precisely what it's going

14 to be.

15   Q.   Okay. So fair to say, then, that the --

16 the logit model pass-through formula that you've

17 used in your report depends on steering?

18   A.   No, I don't think it depends on steering

19 because we can come up with -- we can come up

20 with explanations for how pass-through would

21 occur in the presence of the anti-steering

22 restraint.

23   Q.   So you -- there's reasons why

24 steering would occur despite the anti-steering

25 restrictions?

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1   A.   No, there's reasons why pass-through

2   would occur.

3   Q.   Oh, excuse me.   Okay.   So there are

4   reasons why -- why you would expect pass-through

5   regardless of the anti-steering restrictions?

6   A.   Correct.   I think that while it's true

7   that the anti-steering restrictions make for a

8   very potent impediment to steering and

9   pass-through, there are other ways in which

10   pass-through would occur, even without steering.

11   If I could, you know, ███████████████████

12   ████████████████, and so I've kind of mimicked

13   the assumption of where the developer could

14   choose its payment processor, right?   And you can

15   imagine a world where developers look around at a

16   whole bunch of payment processors in kind of an

17   open and unfettered market and go with the

18   payment processor offering a competitive rate, or

19   one of the lowest rates, and then competition

20   among developers in the same category would put

21   downward pressure on the prices that they charge

22   to their customers.

23   So there are -- there are mechanisms

24   that get you to pass-through and lower prices

25   outside of steering.   But I'll always hold, until

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1   I'm blue in the face, that steering is like a

2   supercharger. It would -- it would -- it would

3   boost all of these properties.

4   Q.   Have you done any analysis to determine

5   by how much it would supercharge all these

6   properties?

7   A.   No. But -- no. But what I'm assuming,

8   I mean, at least in my -- when I wrote this

9   report, I'm assuming that the challenged conduct

10   is gone, and part of the challenged conduct is

11   the anti-steering restrictions. And so I'm

12   confident that there would be pass-through; that

13   it would be positive. Now the question is,

14   what's the tool in economics that I can use to

15   reliably estimate the extent of the pass-through,

16   and that was the logit model.

17   Q.   Right. Now, Google doesn't restrict any

18   marketing or advertising of other platforms

19   -- strike that.

20   Google doesn't restrict developers from

21   marketing or advertising transactions on other

22   platforms outside of the app that's been

23   downloaded from Google Play.

24   A.   That's correct. There -- there's

25   -- Google understands that there would be a

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1   Q.   Well, I'm just saying -- I guess

2   what I'm asking is -- maybe I'll ask it this

3   way: Have -- have you done any analysis that

4   compares the profitability of steering for

5   developers via in app communications versus

6   steering using outside of the app communications?

7   A.   I haven't, but I know this: That to go

8   outside would require a newfound advertising cost

9   that would not otherwise be incurred if you could

10   do it in-app. And that would necessarily lower

11   the profitability of that -- of that steering

12   relative to steering within the app.

13   Q.   Have you done any empirical analysis in

14   your report of whether it would be profitable for

15   any particular developer to reduce prices by a

16   full focal point?

17   A.   I don't know what that means.

18   Q.   Well, --

19   A.   What's a full focal point?

20   Q.   Well, you told me what -- what's your

21   definition of a focal point?

22   A.   Well, we talked about how it's focusing

23   the attention on the left side of the decimal

24   place so you can kind of go high on the right and

25   it's not really going to scare off the customers.

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1   the play points program?

2   A.   The reason why that's the case is that

3   at ███

4   ██

5   ███

6   ██

7   ██

8   ██

9   ████████████████████████████████████

10 ██████████

11   Q.   My question was in the actual world,

12 it's correct that only some consumers signed up

13 for the play points program?

14   A.   In its -- in its existing state of

15 chintziness, yes, ████████████████████████

16 ████████████████████████████████████

17   Q.   And, in fact, in the actual world, only

18 some of the people who did sign up for the play

19 points program actually used the play points they

20 earned?

21   A.   I asked the question why bother.   █████

22 ████████████████████████████████

23   Q.   Okay.   But my question was, in the

24 actual world, only some of the people who signed

25 up for the play points program actually used the

Page 289

1   play points that they earned?

2   A.   I can accept that -- that when the

3   -- when the subsidy was at ████████████

4   ████████████████████████████████████, ██

5   ██

6   ████████████████

7   Q.   So the answer to my question is yes?

8   A.   I can -- I can accept. I haven't

9   studied what percentage redeemed, but ██████

10 ██

11 ████████████████████████████

12 ████████████████████████████

13 ████████████████████████████████

14 ████████████████████████████████████

15 ████████████████████████████████

16 ████████████████████████████

17   ██   ████████████████████████████████

18 ████████████████████████ My question is it's

19 just a fact that only some of the people that

20 signed up for the play points program used their

21 play points, right?

22   A.   I can accept that fact. I haven't

23 studied what percentage have.

24   Q.   Okay. So in your reports, you haven't

25 identify any model to determine which

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1   -- the -- the flip, you know, where it occurs,

2   but I can -- I can conceive that ████████████

3   ██

4   ██████████

5   Q.   Okay.   Now, in your reports have you

6   identified any model to determine which users

7   would have signed up for play points in the

8   but-for world?

9   A.   No.   I don't need to because what the

10   model is giving me is what Google would pay in

11   the aggregate across all consumers in terms of

12   subsidy.   So that ████████ that comes out of the

13   play points model, and doing by memory, is what

14   happens in the aggregate.   So, it's conceivable

15   that -- that some consumers aren't contributing

16   to that -- to that ████████ or some people are

17   doing it disproportionately, but that is going to

18   be the average subsidy that comes about via the

19   -- that if the locus of competition were to occur

20   on the points side of the market.

21   Q.   So the answer to my question is, no, you

22   -- in your reports you haven't put forth any

23   model to determine which users would have signed

24   up for play points in the but-for world?

25   A.   I don't think I need to, just to be

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1   clear --

2   Q.   I'm not asking you whether you need to.

3   A.   Okay.

4   Q.   So I'm going to ask my question again.

5   A.   Okay.

6   Q.   In your reports, did you put forth any

7   model to determine in the but-for world which

8   users would have signed up for the play points

9   program?

10   A.   That's not what the model is calling

11 for. I'll be clear, the model wants to know

12 -- the model is solving for the size of the

13 subsidy across all consumers, right, and if the

14 model is telling us ███████, the way to

15 interpret that -- that -- that parameter is that,

16 on average, the subsidy offered to consumers in

17 the but-for world, if the locus of competition

18 were exclusively on the play points side, right,

19 would be ███████.

20   Q.   Right. And so the model that you put

21 forward in your report regarding play points

22 isn't telling us anything about what individual

23 consumers would do with respect to signing up for

24 the play points program or using their play

25 points, correct?

1   A.   I think the model is. I think that at 8

2   percent, the economic intuition -- well, this is

3   the intuition that I'm drawing from the model --

4   is that when the benefit gets so large, that is

5   going to spur participation and usage in the

6   system.

7   Q.   Great.

8   Your -- your testimony here today, sir,

9   is that you have a model in your reports that can

10   tell the Court and the jury in this case which of

11   the members of the putative class would have

12   signed up for play points and who would have used

13   them?

14   MS. GIULIANELLI: Objection to the form.

15   THE WITNESS: I didn't say that. I said

16   that if the but-for subsidy were to rise to 8

17   percent, then it would be embraced -- the play

18   points system would be embraced across the class

19   just as the way that the points system in the

20   AMEX marketplace is embraced across American

21   Express users.

22   BY MR. RAPHAEL:

23   Q.   Okay. So I want to -- I want to be

24   clear. You have -- your testimony is that in the

25   but-for world, every member of the putative class

1   would sign up for the play points program and use

2   their play points?

3   MS. GIULIANELLI: Objection.

4   THE WITNESS: I cannot -- this is the

5   first time I've been asked that question. I'm

6   just hearing it afresh, right? I cannot fathom

7   why a user would say, no, take back -- I was

8   going to spend a hundred dollars and I realize

9   you're trying to give me ██ , but, no, I don't

10   want the ██ , I want to spend the full hundred

11   myself. It would be crazy -- it would be crazy

12   to -- to do that.

13   BY MR. RAPHAEL:

14   Q.   Sir, in the actual world, some consumers

15   don't sign up for play points or don't use the

16   play points that they earn, correct?

17   A.   We've established, I hope, that ████████

18   ██

19   ██

20   ██

21   ██

22   Q.   Right. And so your testimony is that if

23   Google changed the play points rate that you've

24   put in your report, that every member of the

25   putative class would have signed up for the play

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1   points program and used play points?

2   MS. GIULIANELLI: Objection.

3   THE WITNESS: I think -- I think it's a

4   fair assumption. Like, the model certainly is

5   not calling on this, but I think it's a fair

6   assumption that once it goes up to ▮▮▮▮▮ that

7   -- that everyone who is making purchases would

8   -- would either redeem it or at least enroll so

9   as to be able -- to be capable of taking the

10 subsidy at -- at those terms.

11 BY MR. RAPHAEL:

12   Q.   That's an assumption, though, that

13 you're making. It's not what the model tells

14 you?

15   A.   Well, the model spits out, just to be

16 clear, what the average subsidy is across all

17 users.

18   Q.   Now, you -- would you agree with me that

19 the counterfactual experiment lies at the heart

20 of antitrust analysis?

21   A.   Sure. I mean, it's an important thing.

22 It's -- I don't know if it's at the heart, but

23 you need -- you need to have a counterfactual.

24 You need to model the counterfactual.

25   Q.   Could you describe for me the

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1   methodology you used to construct

2   counterfactuals?

3   A.   In general?

4   Q.   Yes.

5   A.   We try to preserve all the attributes of

6   the actual world, Google choosing a singular

7   headline rate that applies to everyone. And we

8   -- and we deviate only in the restraints that are

9   being challenged. So we try to model a world in

10   which everything is identical. We call it the

11   ceteris paribus assumption. But we try to model,

12   holding everything else constant, what would

13   competition have looked like in the absence of

14   this set of restraints.

15   Q.   Understood. Now, in the actual world

16   Google is a profit-maximizing firm?

17   A.   In the actual and in the but-for, I'll

18   give you that. It's always profit maximizing.

19   Q.   That's what I would think.

20   A.   I mean, you take that away from me -- I

21   mean, you take that away from an economist, we

22   don't say a lot. We're very quiet at cocktail

23   parties if you take that away.

24   Q.   So that's where I was going to go. I

25   just want to make sure I understand in the -- in

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1   the correctly constructed but-for world, an

2   economist should assume that Google is a

3   profit-maximizing firm.

4   A.   Absolutely.

5   Q.   Now, your opinion is that Google would

6   earn lower profits if it eliminated the

7   challenged conduct?

8   A.   Lower profits but still enormous sums,

9   yes.

10   Q.   But lower?

11   A.   Lower, yes.

12   Q.   Right. So if Google's a

13   profit-maximizing firm and it lost profits in the

14   but-for world without the challenged conduct,

15   would you expect Google to take steps to try to

16   earn those profits through some other means?

17   A.   Not if they're anticompetitive. I mean,

18   if a court has told that you that, you know, the

19   tie-in was illegal, you can't reconstruct the tie

20   through some other means to try to bring back

21   those -- those anticompetitive profits.

22   Q.   Well, let me ask a clearer question: If

23   Google's a profit-maximizing firm, in a world

24   without the challenged conduct where you say

25   Google would earn lower profits, would you expect

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1 Google to try to take any lawful or competitive

2 means to earn back those profits?

3   A.   Well, with the caveat, it's not just

4 anything lawful, it's gotta be something that is

5 profit maximizing. Like, for example, Dr. Burtis

6 likes to talk about, you know, ███████████████████

7 ██

8 ██

9 ███████████████████████████████████   The idea

10 would -- it would just violate the entire

11 business model. So it has to be -- I'm with you

12 that it has to be profit maximizing.

13   Q.   Right. Right. But in a but-for world

14 where Google had lower profits, as a

15 profit-maximizing firm, they would try to do

16 anything else to earn back those profits if it

17 was profit-maximizing?

18   A.   Well, a few -- a few other criteria.

19 It's gotta be profit maximizing, and it's gotta

20 be legal and procompetitive. You can't replicate

21 the tie-in through some other means.

22   Q.   Is there anything anticompetitive about

23 ██

24 █████████████████████████

25   A.   The -- the mere ██████████████████████████

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1

2

3   A.   Well, I -- I want to push back on that,

4 respectfully, just a bit, if I could, all right,

5 because you're disavowing all the advertising

6 revenue, you're disavowing what it made in the --

7 in the market for app distribution, you're

8 disavowing what it's making on all the other

9 percent of the transactions that it is

10 consummating the in-app transactions on. So I

11 just want the record to -- to be crystal clear

12 that it's not like Google is just left on the

13 street, you know, begging for -- for cash out

14 there, right?

15   Q.   So, let's talk about a particular

16 transaction in the but-for world where the app

17 has been downloaded for free.

18   A.   Okay.

19   Q.   So in that scenario, Google would not

20 have earned any service fee from the transaction

21 in the app distribution market.

22   A.   Right.

23   Q.   And then there's a transaction in the

24 in-app aftermarket where Google doesn't serve as

25 the payment processor. Do you -- do you have

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1   that?

2   A.   Yeah.

3   Q.   Okay. In -- in that transaction in the

4   but-for world, setting aside advertising that

5   Google might have -- might have earned through

6   some other way, Google's not earning any service

7   fee at all on that transaction?

8   A.   That's fair.

9   Q.   Okay. Now, I think your opinion in your

10 report is that in the but-for world, Google would

11 earn a service fee rate of ███ percent on in-app

12 transactions for which it served as the payment

13 processor?

14   A.   And not just the payment processor, on

15 all the -- the whole suite of aftermarket

16 services.

17   Q.   Okay. Well, does Google provide any

18 aftermarket services on the transactions for

19 which it doesn't serve as payment processor?

20   MS. GIULIANELLI: Objection to form.

21   THE WITNESS: Well, we -- we've never

22 seen that world, right? So you're asking me if

23 -- am I assuming that they're not? Because in

24 the real world they're tying -- they're forcing

25 themselves to be in every transaction.